

# SEQUENCE LISTING

<110> Walke, D. Wade  
Hu, Yi  
Nepomnichy, Boris  
Turner, C. Alexander Jr  
Zambrowicz, Brian

<120> Novel Human Kinases and Polynucleotides Encoding the Same

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<151> 2000-02-18

<150> US 60/184,014

<151> 2000-02-22

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| tcagtaact  | ccatattgga  | gaaaggtttt  | atagccaaac  | gcattgaaaa | gtttctctct | 180  |
| cctcagctta | ttgcagaaga  | attttgtcta  | aaaacatttt  | cgaagtttgg | atcacagcct | 240  |
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Gly Phe Ile Ala Lys Arg Ile Glu Lys Phe Leu Ser Pro Gln Leu Ile
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Pro Ala Gln Lys Ile Thr Lys Pro Ala Ala Lys Tyr Gly Ile Pro Leu
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Ala Tyr Lys Lys Tyr Gly Asp Lys Lys Leu His Glu Lys Lys Pro Leu
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Gln Lys His Lys Gln Ala His Gln Thr Pro Glu Lys Arg Val Asn Thr
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| Arg     | Leu | Arg     | Gln 340 | Ile     | Arg     | Leu     | Gln     | Asn 345 | Phe     | Asn     | Glu     | Arg     | Gln 350 | Gln     | Ile |  |  |  |
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| Leu 385 | Lys | Ala     | His     | Ala     | Asn 390 | Ala     | Arg     | Ala     | Ala     | Val 395 | Leu     | Lys     | Glu     | Gln     | Leu |  |  |  |
| Glu     | Arg | Lys     | Arg     | Lys 405 | Glu     | Ala     | Tyr     | Glu     | Arg 410 | Glu     | Lys     | Lys     | Val     | Trp 415 | Glu |  |  |  |
| Glu     | His | Leu     | Val 420 | Ala     | Lys     | Gly     | Val     | Lys 425 | Ser     | Ser     | Asp     | Val     | Ser 430 | Pro     | Pro |  |  |  |
| Leu     | Gly | Gln 435 | His     | Glu     | Thr     | Gly     | Gly 440 | Ser     | Pro     | Ser     | Lys     | Gln 445 | Gln     | Met     | Arg |  |  |  |
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| Ser 465 | Leu | Thr     | Asp     | Thr     | Arg 470 | Glu     | Thr     | Ser     | Glu     | Glu     | Met 475 | Gln     | Lys     | Thr     | Asn |  |  |  |
| Asn     | Ala | Ile     | Ser     | Ser 485 | Lys     | Arg     | Glu     | Ile     | Leu     | Arg 490 | Arg     | Leu     | Asn     | Glu 495 | Asn |  |  |  |
| Leu     | Lys | Ala     | Gln 500 | Glu     | Asp     | Glu     | Lys     | Gly 505 | Met     | Gln     | Asn     | Leu     | Ser 510 | Asp     | Thr |  |  |  |
| Phe     | Glu | Ile 515 | Asn     | Val     | His     | Glu     | Asp 520 | Ala     | Lys     | Glu     | His     | Glu 525 | Lys     | Glu     | Lys |  |  |  |
| Ser     | Val | Ser 530 | Ser     | Asp     | Arg     | Lys 535 | Lys     | Trp     | Glu     | Ala     | Gly 540 | Gly     | Gln     | Leu     | Val |  |  |  |
| Ile 545 | Pro | Leu     | Asp     | Glu     | Leu 550 | Thr     | Leu     | Asp     | Thr     | Ser 555 | Phe     | Ser     | Thr     | Thr     | Glu |  |  |  |
| Arg     | His | Thr     | Val     | Gly 565 | Glu     | Val     | Ile     | Lys     | Leu 570 | Gly     | Pro     | Asn     | Gly     | Ser 575 | Pro |  |  |  |
| Arg     | Arg | Ala     | Trp 580 | Gly     | Lys     | Ser     | Pro     | Thr 585 | Asp     | Ser     | Val     | Leu     | Lys 590 | Ile     | Leu |  |  |  |
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| Ile     | Arg | Ser 610 | Glu     | Ile     | Ser     | Pro 615 | Glu     | Gly     | Glu     | Lys     | Tyr 620 | Lys     | Pro     | Leu     | Ile |  |  |  |
| Thr 625 | Gly | Glu     | Lys     | Lys     | Val 630 | Gln     | Cys     | Ile     | Ser     | His     | Glu 635 | Ile     | Asn     | Pro     | Ser |  |  |  |
| Ala     | Ile | Val     | Asp     | Ser 645 | Pro     | Val     | Glu     | Thr     | Lys 650 | Ser     | Pro     | Glu     | Phe     | Ser 655 | Glu |  |  |  |
| Ala     | Ser | Pro     | Gln 660 | Met     | Ser     | Leu     | Lys     | Leu 665 | Glu     | Gly     | Asn     | Leu     | Glu 670 | Glu     | Pro |  |  |  |
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| Lys 705 | Glu | Thr     | Lys     | Glu     | Thr 710 | Gln     | Ser     | Ala     | Asp     | Arg     | Ile     | Thr     | Ile     | Gln     | Glu |  |  |  |
| Asn     | Glu | Val     | Ser     | Glu 725 | Asp     | Gly     | Val     | Ser     | Ser 730 | Thr     | Val     | Asp     | Gln     | Leu 735 | Ser |  |  |  |
| Asp     | Ile | His 740 | Ile     | Glu     | Pro     | Gly     | Thr 745 | Asn     | Asp     | Ser     | Gln     | His     | Ser 750 | Lys     | Cys |  |  |  |
| Asp     | Val | Asp 755 | Lys     | Ser     | Val     | Gln     | Pro 760 | Glu     | Pro     | Phe     | Phe     | His 765 | Lys     | Val     | Val |  |  |  |
| His     | Ser | Glu 770 | His     | Leu     | Asn     | Leu 775 | Val     | Pro     | Gln     | Val     | Gln     | Ser     | Val     | Gln     | Cys |  |  |  |
| Ser 785 | Pro | Glu     | Glu     | Ser     | Phe 790 | Ala     | Phe     | Arg     | Ser     | His     | Ser     | His     | Leu     | Pro     | Pro |  |  |  |

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| 1     |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |
| Lys   | Ala | Ile | Leu | Val | Lys | Ser | Thr | Glu | Asp | Gly | Arg | Gln | Tyr | Val | Ile |  |
|       |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |
| Lys   | Glu | Ile | Asn | Ile | Ser | Arg | Met | Ser | Ser | Lys | Glu | Arg | Glu | Glu | Ser |  |
|       |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |
| Arg   | Arg | Glu | Val | Ala | Val | Leu | Ala | Asn | Met | Lys | His | Pro | Asn | Ile | Val |  |
|       |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Gln   | Tyr | Arg | Glu | Ser | Phe | Glu | Glu | Asn | Gly | Ser | Leu | Tyr | Ile | Val | Met |  |
| 65    |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |  |
| Asp   | Tyr | Cys | Glu | Gly | Gly | Asp | Leu | Phe | Lys | Arg | Ile | Asn | Ala | Gln | Lys |  |
|       |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |
| Gly   | Val | Leu | Phe | Gln | Glu | Asp | Gln | Ile | Leu | Asp | Trp | Phe | Val | Gln | Ile |  |
|       |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Cys   | Leu | Ala | Leu | Lys | His | Val | His | Asp | Arg | Lys | Ile | Leu | His | Arg | Asp |  |
|       |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |
| Ile   | Lys | Ser | Gln | Asn | Ile | Phe | Leu | Thr | Lys | Asp | Gly | Thr | Val | Gln | Leu |  |
|       |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Gly   | Asp | Phe | Gly | Ile | Ala | Arg | Val | Leu | Asn | Ser | Thr | Val | Glu | Leu | Ala |  |
| 145   |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |  |
| Arg   | Thr | Cys | Ile | Gly | Thr | Pro | Tyr | Tyr | Leu | Ser | Pro | Glu | Ile | Cys | Glu |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Asn | Lys | Pro | Tyr | 165 | Asn | Asn | Lys | Ser | Asp | 170 | Ile | Trp | Ala | Leu | Gly | 175 |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Leu | Tyr | Glu | Leu | Cys | Thr | Leu | Lys | His | Ala | Phe | Glu | Ala | Gly | Ser | Met |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Lys | Asn | Leu | Val | Leu | Lys | Ile | Ile | Ser | Gly | Ser | Phe | Pro | Pro | Val | Ser |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Leu | His | Tyr | Ser | Tyr | Asp | Leu | Arg | Ser | Leu | Val | Ser | Gln | Leu | Phe | Lys |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Arg | Asn | Pro | Arg | Asp | Arg | Pro | Ser | Val | Asn | Ser | Ile | Leu | Glu | Lys | Gly |     |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Phe | Ile | Ala | Lys | Arg | Ile | Glu | Lys | Phe | Leu | Ser | Pro | Gln | Leu | Ile | Ala |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Glu | Glu | Phe | Cys | Leu | Lys | Thr | Phe | Ser | Lys | Phe | Gly | Ser | Gln | Pro | Ile |     |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Pro | Ala | Lys | Arg | Pro | Ala | Ser | Gly | Gln | Asn | Ser | Ile | Ser | Val | Met | Pro |     |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| Ala | Gln | Lys | Ile | Thr | Lys | Pro | Ala | Ala | Lys | Tyr | Gly | Ile | Pro | Leu | Ala |     |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |
| Tyr | Lys | Lys | Tyr | Gly | Asp | Lys | Lys | Leu | His | Glu | Lys | Lys | Pro | Leu | Gln |     |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Lys | His | Lys | Gln | Ala | His | Gln | Thr | Pro | Glu | Lys | Arg | Val | Asn | Thr | Gly |     |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Glu | Glu | Arg | Arg | Lys | Ile | Ser | Glu | Glu | Ala | Ala | Arg | Lys | Arg | Arg | Leu |     |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |
| Glu | Phe | Ile | Glu | Lys | Glu | Lys | Lys | Gln | Lys | Asp | Gln | Ile | Ile | Ser | Leu |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |     |
| Met | Lys | Ala | Glu | Gln | Met | Lys | Arg | Gln | Glu | Lys | Glu | Arg | Leu | Glu | Arg |     |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |     |
| Ile | Asn | Arg | Ala | Arg | Glu | Gln | Gly | Trp | Arg | Asn | Val | Leu | Ser | Ala | Gly |     |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |     |
| Gly | Ser | Gly | Glu | Val | Lys | Ala | Pro | Phe | Leu | Gly | Ser | Gly | Gly | Thr | Ile |     |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |
| Ala | Pro | Ser | Ser | Phe | Ser | Ser | Arg | Gly | Gln | Tyr | Glu | His | Tyr | His | Ala |     |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |
| Ile | Phe | Asp | Gln | Met | Gln | Gln | Gln | Arg | Ala | Glu | Asp | Asn | Glu | Ala | Lys |     |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |
| Trp | Lys | Arg | Glu | Ile | Tyr | Gly | Arg | Gly | Leu | Pro | Glu | Arg | Gln | Lys | Gly |     |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |     |
| Gln | Leu | Ala | Val | Glu | Arg | Ala | Lys | Gln | Val | Glu | Glu | Phe | Leu | Gln | Arg |     |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |     |
| Lys | Arg | Glu | Ala | Met | Gln | Asn | Lys | Ala | Arg | Ala | Glu | Gly | His | Met | Val |     |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     | </  |     |     |     |     |

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Asn  | Glu  | Asn  | Leu  | Lys  | Ala  | Gln  | Glu  | Asp  | Glu  | Lys  | Gly  | Met  | Gln  | Asn  | Leu  |
|      | 675  |      |      |      |      |      | 680  |      |      |      |      | 685  |      |      |      |
| Ser  | Asp  | Thr  | Phe  | Glu  | Ile  | Asn  | Val  | His  | Glu  | Asp  | Ala  | Lys  | Glu  | His  | Glu  |
|      | 690  |      |      |      |      | 695  |      |      |      |      | 700  |      |      |      |      |
| Lys  | Glu  | Lys  | Ser  | Val  | Ser  | Ser  | Asp  | Arg  | Lys  | Lys  | Trp  | Glu  | Ala  | Gly  | Gly  |
| 705  |      |      |      | 710  |      |      |      |      |      | 715  |      |      |      |      | 720  |
| Gln  | Leu  | Val  | Ile  | Pro  | Leu  | Asp  | Glu  | Leu  | Thr  | Leu  | Asp  | Thr  | Ser  | Phe  | Ser  |
|      |      |      | 725  |      |      |      |      |      | 730  |      |      |      |      | 735  |      |
| Thr  | Thr  | Glu  | Arg  | His  | Thr  | Val  | Gly  | Glu  | Val  | Ile  | Lys  | Leu  | Gly  | Pro  | Asn  |
|      |      |      | 740  |      |      |      |      | 745  |      |      |      |      | 750  |      |      |
| Gly  | Ser  | Pro  | Arg  | Arg  | Ala  | Trp  | Gly  | Lys  | Ser  | Pro  | Thr  | Asp  | Ser  | Val  | Leu  |
|      |      | 755  |      |      |      |      | 760  |      |      |      |      | 765  |      |      |      |
| Lys  | Ile  | Leu  | Gly  | Glu  | Ala  | Glu  | Leu  | Gln  | Leu  | Gln  | Thr  | Glu  | Leu  | Leu  | Glu  |
|      | 770  |      |      |      |      | 775  |      |      |      |      | 780  |      |      |      |      |
| Asn  | Thr  | Thr  | Ile  | Arg  | Ser  | Glu  | Ile  | Ser  | Pro  | Glu  | Gly  | Glu  | Lys  | Tyr  | Lys  |
| 785  |      |      |      |      | 790  |      |      |      |      | 795  |      |      |      |      | 800  |
| Pro  | Leu  | Ile  | Thr  | Gly  | Glu  | Lys  | Lys  | Val  | Gln  | Cys  | Ile  | Ser  | His  | Glu  | Ile  |
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| Phe  | Ser  | Glu  | Ala  | Ser  | Pro  | Gln  | Met  | Ser  | Leu  | Lys  | Leu  | Glu  | Gly  | Asn  | Leu  |
|      |      | 835  |      |      |      |      | 840  |      |      |      |      | 845  |      |      |      |
| Glu  | Glu  | Pro  | Asp  | Asp  | Leu  | Glu  | Thr  | Glu  | Ile  | Leu  | Gln  | Glu  | Pro  | Ser  | Gly  |
|      | 850  |      |      |      |      | 855  |      |      |      |      | 860  |      |      |      |      |
| Thr  | Asn  | Lys  | Asp  | Glu  | Ser  | Leu  | Pro  | Cys  | Thr  | Ile  | Thr  | Asp  | Val  | Trp  | Ile  |
| 865  |      |      |      |      |      | 870  |      |      |      | 875  |      |      |      |      | 880  |
| Ser  | Glu  | Glu  | Lys  | Glu  | Thr  | Lys  | Glu  | Thr  | Gln  | Ser  | Ala  | Asp  | Arg  | Ile  | Thr  |
|      |      |      |      | 885  |      |      |      |      | 890  |      |      |      |      | 895  |      |
| Ile  | Gln  | Glu  | Asn  | Glu  | Val  | Ser  | Glu  | Asp  | Gly  | Val  | Ser  | Ser  | Thr  | Val  | Asp  |
|      |      |      | 900  |      |      |      |      | 905  |      |      |      |      | 910  |      |      |
| Gln  | Leu  | Ser  | Asp  | Ile  | His  | Ile  | Glu  | Pro  | Gly  | Thr  | Asn  | Asp  | Ser  | Gln  | His  |
|      |      | 915  |      |      |      |      | 920  |      |      |      |      | 925  |      |      |      |
| Ser  | Lys  | Cys  | Asp  | Val  | Asp  | Lys  | Ser  | Val  | Gln  | Pro  | Glu  | Pro  | Phe  | Phe  | His  |
|      | 930  |      |      |      |      | 935  |      |      |      |      | 940  |      |      |      |      |
| Lys  | Val  | Val  | His  | Ser  | Glu  | His  | Leu  | Asn  | Leu  | Val  | Pro  | Gln  | Val  | Gln  | Ser  |
| 945  |      |      |      |      |      | 950  |      |      |      | 955  |      |      |      |      | 960  |
| Val  | Gln  | Cys  | Ser  | Pro  | Glu  | Glu  | Ser  | Phe  | Ala  | Phe  | Arg  | Ser  | His  | Ser  | His  |
|      |      |      |      | 965  |      |      |      |      | 970  |      |      |      |      | 975  |      |
| Leu  | Pro  | Pro  | Lys  | Asn  | Lys  | Asn  | Lys  | Asn  | Ser  | Leu  | Leu  | Ile  | Gly  | Leu  | Ser  |
|      |      |      | 980  |      |      |      |      | 985  |      |      |      |      | 990  |      |      |
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| Leu  | Pro  | Asp  | Leu  | Ser  | Lys  | Leu  | Phe  | Arg  | Thr  | Leu  | Met  | Asp  | Val  | Pro  | Thr  |
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| Val  | Gly  | Asp  | Val  | Arg  | Gln  | Asp  | Asn  | Leu  | Glu  | Ile  | Asp  | Glu  | Ile  | Lys  | Asp  |
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| Glu  | Asn  | Ile  | Lys  | Glu  | Gly  | Pro  | Ser  | Asp  | Ser  | Glu  | Asp  | Ile  | Val  | Phe  | Glu  |
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| Glu  | Thr  | Asp  | Thr  | Asp  | Leu  | Gln  | Glu  | Leu  | Gln  | Ala  | Ser  | Met  | Glu  | Gln  | Leu  |
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| Leu  | Arg  | Glu  | Gln  | Pro  | Gly  | Glu  | Glu  | Tyr  | Ser  | Glu  | Glu  | Glu  | Glu  | Ser  | Val  |
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 Leu Glu Phe Ile Glu Lys Glu Lys Lys Gln Lys Asp Gln Ile Ile Ser  
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 Leu Met Lys Ala Glu Gln Met Lys Arg Gln Glu Lys Glu Arg Leu Glu  
 180 185 190  
 Arg Ile Asn Arg Ala Arg Glu Gln Gly Trp Arg Asn Val Leu Ser Ala  
 195 200 205  
 Gly Gly Ser Gly Glu Val Lys Ala Pro Phe Leu Gly Ser Gly Gly Thr  
 210 215 220  
 Ile Ala Pro Ser Ser Phe Ser Ser Arg Gly Gln Tyr Glu His Tyr His  
 225 230 235 240  
 Ala Ile Phe Asp Gln Met Gln Gln Gln Arg Ala Glu Asp Asn Glu Ala  
 245 250 255  
 Lys Trp Lys Arg Glu Ile Tyr Gly Arg Gly Leu Pro Glu Arg Gln Lys  
 260 265 270  
 Gly Gln Leu Ala Val Glu Arg Ala Lys Gln Val Glu Glu Phe Leu Gln  
 275 280 285  
 Arg Lys Arg Glu Ala Met Gln Asn Lys Ala Arg Ala Glu Gly His Met  
 290 295 300  
 Val Tyr Leu Ala Arg Leu Arg Gln Ile Arg Leu Gln Asn Phe Asn Glu  
 305 310 315 320  
 Arg Gln Gln Ile Lys Ala Lys Leu Arg Gly Glu Lys Lys Glu Ala Asn  
 325 330 335  
 His Ser Glu Gly Gln Glu Gly Ser Glu Glu Ala Asp Met Arg Arg Lys  
 340 345 350  
 Lys Ile Glu Ser Leu Lys Ala His Ala Asn Ala Arg Ala Ala Val Leu  
 355 360 365  
 Lys Glu Gln Leu Glu Arg Lys Arg Lys Glu Ala Tyr Glu Arg Glu Lys  
 370 375 380  
 Lys Val Trp Glu Glu His Leu Val Ala Lys Gly Val Lys Ser Ser Asp  
 385 390 395 400  
 Val Ser Pro Pro Leu Gly Gln His Glu Thr Gly Gly Ser Pro Ser Lys  
 405 410 415  
 Gln Gln Met Arg Ser Val Ile Ser Val Thr Ser Ala Leu Lys Glu Val  
 420 425 430  
 Gly Val Asp Ser Ser Leu Thr Asp Thr Arg Glu Thr Ser Glu Glu Met  
 435 440 445  
 Gln Lys Thr Asn Asn Ala Ile Ser Ser Lys Arg Glu Ile Leu Arg Arg

|         |         |     |         |         |         |     |         |         |         |         |         |         |         |         |         |  |
|---------|---------|-----|---------|---------|---------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|         | 450     |     |         |         |         | 455 |         |         |         |         | 460     |         |         |         |         |  |
| Leu 465 | Asn     | Glu | Asn     | Leu     | Lys 470 | Ala | Gln     | Glu     | Asp     | Glu 475 | Lys     | Gly     | Met     | Gln     | Asn 480 |  |
| Leu     | Ser     | Asp | Thr     | Phe 485 | Glu     | Ile | Asn     | Val     | His 490 | Glu     | Asp     | Ala     | Lys     | Glu 495 | His     |  |
| Glu     | Lys     | Glu | Lys 500 | Ser     | Val     | Ser | Ser     | Asp 505 | Arg     | Lys     | Lys     | Trp     | Glu 510 | Ala     | Gly     |  |
| Gly     | Gln     | Leu | Val 515 | Ile     | Pro     | Leu | Asp 520 | Glu     | Leu     | Thr     | Leu     | Asp 525 | Thr     | Ser     | Phe     |  |
| Ser     | Thr 530 | Thr | Glu     | Arg     | His 535 | Thr | Val     | Gly     | Glu     | Val 540 | Ile     | Lys     | Leu     | Gly     | Pro     |  |
| Asn 545 | Gly     | Ser | Pro     | Arg 550 | Arg     | Ala | Trp     | Gly     | Lys 555 | Ser     | Pro     | Thr     | Asp     | Ser     | Val 560 |  |
| Leu     | Lys     | Ile | Leu 565 | Gly     | Glu     | Ala | Glu     | Leu     | Gln 570 | Leu     | Gln     | Thr     | Glu 575 | Leu     | Leu     |  |
| Glu     | Asn     | Thr | Thr 580 | Ile     | Arg     | Ser | Glu     | Ile 585 | Ser     | Pro     | Glu     | Gly     | Glu 590 | Lys     | Tyr     |  |
| Lys     | Pro 595 | Leu | Ile     | Thr     | Gly 600 | Glu | Lys     | Lys     | Val     | Gln     | Cys     | Ile 605 | Ser     | His     | Glu     |  |
| Ile     | Asn 610 | Pro | Ser     | Ala     | Ile 615 | Val | Asp     | Ser     | Pro     | Val     | Glu     | Thr     | Lys     | Ser     | Pro     |  |
| Glu 625 | Phe     | Ser | Glu     | Ala 630 | Ser     | Pro | Gln     | Met     | Ser     | Leu 635 | Lys     | Leu     | Glu     | Gly     | Asn 640 |  |
| Leu     | Glu     | Glu | Pro 645 | Asp     | Asp     | Leu | Glu     | Thr     | Glu 650 | Ile     | Leu     | Gln     | Glu 655 | Pro     | Ser     |  |
| Gly     | Thr 660 | Asn | Lys     | Asp     | Glu     | Ser | Leu     | Pro 665 | Cys     | Thr     | Ile     | Thr     | Asp 670 | Val     | Trp     |  |
| Ile     | Ser 675 | Glu | Glu     | Lys     | Glu     | Thr | Lys 680 | Glu     | Thr     | Gln     | Ser     | Ala 685 | Asp     | Arg     | Ile     |  |
| Thr     | Ile 690 | Gln | Glu     | Asn     | Glu 695 | Val | Ser     | Glu     | Asp     | Gly 700 | Val     | Ser     | Ser     | Thr     | Val     |  |
| Asp 705 | Gln     | Leu | Ser     | Asp 710 | Ile     | His | Ile     | Glu     | Pro     | Gly 715 | Thr     | Asn     | Asp     | Ser     | Gln 720 |  |
| His     | Ser     | Lys | Cys 725 | Asp     | Val     | Asp | Lys     | Ser     | Val 730 | Gln     | Pro     | Glu     | Pro     | Phe 735 | Phe     |  |
| His     | Lys 740 | Val | Val     | His     | Ser     | Glu | His 745 | Leu     | Asn     | Leu     | Val     | Pro 750 | Gln     | Val     | Gln     |  |
| Ser     | Val 755 | Gln | Cys     | Ser     | Pro     | Glu | Glu 760 | Ser     | Phe     | Ala     | Phe     | Arg 765 | Ser     | His     | Ser     |  |
| His     | Leu 770 | Pro | Pro     | Lys     | Asn 775 | Lys | Asn     | Lys     | Asn     | Ser     | Leu 780 | Leu     | Ile     | Gly     | Leu     |  |
| Ser 785 | Thr     | Gly | Leu     | Phe 790 | Asp     | Ala | Asn     | Asn     | Pro     | Lys 795 | Met     | Leu     | Arg     | Thr     | Cys 800 |  |
| Ser     | Leu     | Pro | Asp 805 | Leu     | Ser     | Lys | Leu     | Phe     | Arg 810 | Thr     | Leu     | Met     | Asp     | Val 815 | Pro     |  |
| Thr     | Val 820 | Gly | Asp     | Val     | Arg     | Gln | Asp 825 | Asn     | Leu     | Glu     | Ile     | Asp     | Glu 830 | Ile     | Lys     |  |
| Asp     | Glu 835 | Asn | Ile     | Lys     | Glu     | Gly | Pro 840 | Ser     | Asp     | Ser     | Glu     | Asp 845 | Ile     | Val     | Phe     |  |
| Glu     | Glu 850 | Thr | Asp     | Thr     | Asp 855 | Leu | Gln     | Glu     | Leu     | Gln     | Ala     | Ser     | Met     | Glu     | Gln     |  |
| Leu 865 | Leu     | Arg | Glu     | Gln     | Pro 870 | Gly | Glu     | Glu     | Tyr     | Ser 875 | Glu     | Glu     | Glu     | Glu     | Ser     |  |
| Val     | Leu     | Lys | Asn 885 | Ser     | Asp     | Val | Glu     | Pro     | Thr 890 | Ala     | Asn     | Gly     | Thr     | Asp 895 | Val     |  |
| Ala     | Asp     | Glu | Asp 900 | Asn     | Pro     | Ser | Ser     | Glu     | Ser 905 | Ala     | Leu     | Asn     | Glu     | Glu     | Glu     |  |
| Trp     | His 915 | Ser | Asp     | Asn     | Ser     | Asp | Gly 920 | Glu     | Ile     | Ala     | Ser     | Glu     | Cys     | Glu     | Cys     |  |
| Asp     | Ser 930 | Val | Phe     | Asn     | His 935 | Leu | Glu     | Glu     | Leu     | Arg     | Leu 940 | His     | Leu     | Glu     | Gln     |  |
| Glu 945 | Met     | Gly | Phe     | Glu     | Lys 950 | Phe | Phe     | Glu     | Val     | Tyr 955 | Glu     | Lys     | Ile     | Lys     | Ala 960 |  |



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      210              215              220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225              230              235              240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
      245              250              255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
      260              265              270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
      275              280              285
Pro Ser Lys His Phe Gln Glu Arg
      290              295

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<210> 9  
 <211> 219  
 <212> DNA  
 <213> homo sapiens

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<400> 9
atgaaacttt tcttcagat gtttatcaaa gccctctttg actataatcc taatgaggat      60
aaggcaattc catgtaagga agctgggctt tctttcaaaa agggagatat tcttcagatt      120
atgagccaag atgatgcaac ttggtggcaa gcgaaacacg aagctgatgc caacccagg      180
gcaggcttga tccctcaaaa gcatttccag gaaaggtga      219

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<210> 10  
 <211> 72  
 <212> PRT  
 <213> homo sapiens

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<400> 10
Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
 1              5              10              15
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
      20              25              30
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
      35              40              45
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
      50              55              60
Pro Ser Lys His Phe Gln Glu Arg
      65              70

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<210> 11  
 <211> 957  
 <212> DNA  
 <213> homo sapiens

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<400> 11
atgccagctt tgtcaacggg atctgggagt gacactggtc tgtatgagct gttggctgct      60
ctgccagccc agctgcagcc acatgtggat agccaggaag acctgacctt cctctgggat      120
atgtttggtg aaaaaagcct gcattcattg gtaaagattc atgaaaaact acactactat      180
gagaagcaga gtccggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc      240
gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttgaa actactgtca      300
aaacccaatg tgaaggcttt gctctctgta catgatactg tggctcagaa gaattacgac      360
ccagtgttgc ctcctatgcc tgaagatatt gacgatgagg aagactcagt aaaaataatc      420
cgtctgggtc aaaatagaga accactggga gctaccatta agaaggatga acagaccggg      480
gcgatcattg tggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat      540
gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaag gcctgaggaa      600
ataatacaga ttttgggtca gtctcaggga gcaattacat ttaagattat acccggcagc      660
aaagaggaga caccatcaaa agaaggcaag atgtttatca aagccctctt tgactataat      720
cctaattgagg ataaggcaat tccatgtaag gaagctgggc tttctttcaa aaaggagat      780
attcttcaga ttatgagcca agatgatgca acttgggtgc aagcgaaaca cgaagctgat      840
gcccaaccca gggcaggctt gatccccctc aagcatttcc aggaaaggag attggctttg      900
agacgaccag aaatattggt tcagcccctg aaagtttcca acaggaaatc atcctaa      957

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<210> 12  
 <211> 318  
 <212> PRT  
 <213> homo sapiens

<400> 12  
 Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu  
 1 5 10 15  
 Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln  
 20 25 30  
 Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His  
 35 40 45  
 Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser  
 50 55 60  
 Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala  
 65 70 75 80  
 Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu  
 85 90 95  
 Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp  
 100 105 110  
 Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu  
 115 120 125  
 Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys  
 130 135 140  
 Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly  
 145 150 155 160  
 Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser  
 165 170 175  
 Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro  
 180 185 190  
 Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser  
 195 200 205  
 Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr  
 210 215 220  
 Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn  
 225 230 235 240  
 Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
 245 250 255  
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp  
 260 265 270  
 Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile  
 275 280 285  
 Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu  
 290 295 300  
 Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser  
 305 310 315

<210> 13  
 <211> 285  
 <212> DNA  
 <213> homo sapiens

<400> 13  
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 aaggcaattc catgtaagga agctgggctt tctttcaaaa agggagatat tcttcagatt 120  
 atgagccaag atgatgcaac ttgggtggcaa gcgaaacacg aagctgatgc caacccagg 180  
 gcaggcttga tcccctcaaa gcatttccag gaaaggagat tggctttgag acgaccagaa 240  
 atattggttc agcccctgaa agtttccaac aggaaatcat cctaa 285

<210> 14  
 <211> 94  
 <212> PRT  
 <213> homo sapiens

<400> 14  
Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn  
1 5 10 15  
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
20 25 30  
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp  
35 40 45  
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile  
50 55 60  
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu  
65 70 75 80  
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser  
85 90

<210> 15  
<211> 327  
<212> DNA  
<213> homo sapiens

<400> 15  
atgtgctgcc caaagactgc ttgcagaggt cccgtgggag tagggctgaa tgaactgaaa 60  
cgaaagctgc tgatcagtga caccagcac tatggcgtga cagtgcccca taccaccaga 120  
gcaagaagaa gccaggagag tgatgggtgtt gaatacattt tcatttccaa gcatttggtt 180  
gagacagatg tacaaaataa caagtttatt gaatatggag aatataaaaa caactactac 240  
ggcacaagta tagactcagt tcggtctgtc cttgctaaaa acaaagtttg tttgttggtg 300  
gttcagcctc atgtaagtaa acaatga 327

<210> 16  
<211> 108  
<212> PRT  
<213> homo sapiens

<400> 16  
Met Cys Cys Pro Lys Thr Ala Cys Arg Gly Pro Val Gly Val Gly Leu  
1 5 10 15  
Asn Glu Leu Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly  
20 25 30  
Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp  
35 40 45  
Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val  
50 55 60  
Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr  
65 70 75 80  
Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val  
85 90 95  
Cys Leu Leu Asp Val Gln Pro His Val Ser Lys Gln  
100 105

<210> 17  
<211> 1128  
<212> DNA  
<213> homo sapiens

<400> 17  
atgccagctt tgtcaacggg atctgggagt gacactggtc tgtatgagct gttggctgct 60  
ctgccagccc agctgcagcc acatgtggat agccaggaag acctgacctt cctctgggat 120  
atgtttggtg aaaaaagcct gcattcattg gtaaagattc atgaaaaact acactactat 180  
gagaagcaga gtccggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc 240  
gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttgaa actactgtca 300  
aaacccaatg tgaaggcttt gctctctgta catgatactg tggctcagaa gaattacgac 360  
ccagtgttgc ctcttatgcc tgaagatatt gacgatgagg aagactcagt aaaaataatc 420  
cgtctggtca aaaatagaga accactggga gctaccatta agaaggatga acagaccggg 480  
cggatcattg tggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat 540

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gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaaag gcctgaggaa 600
ataatacaga ttttgggtca gtctcagggg gcaattacat ttaagattat acccggcagc 660
aaagaggaga caccatcaaa agaaggcaag atgtttatca aagccctctt tgactataat 720
cctaattgagg ataaggcaat tccatgtaag gaagctgggc tttctttcaa aaaggagat 780
attcttcaga ttatgagcca agatgatgca acttggtggc aagcgaaaca cgaagctgat 840
gccaacccca gggcaggctt gatccctca aagcatttcc aggaaaggag attggctttg 900
agacgaccag aaatattggt tcagcccctg aaagtttcca acaggaaatc atctggtttt 960
agaagaagtt ttcgtcttag tagaaaagat aagaaaacaa ataaatccat gtatgaatgc 1020
aagaagagtg atcagtacga cacagctgac gtaccacat acgaagaagt gacaccgtat 1080
cggcgacaaa ctaatgaaaa atacagactc gttgtcttgg ttgcttga 1128

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<210> 18  
 <211> 375  
 <212> PRT  
 <213> homo sapiens

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<400> 18
Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu
 1      5      10      15
Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
 20      25      30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
 35      40      45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
 50      55      60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
 65      70      75      80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
 85      90      95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100      105      110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115      120      125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130      135      140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145      150      155      160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165      170      175
Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
180      185      190
Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
195      200      205
Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
210      215      220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225      230      235      240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
245      250      255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
260      265      270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
275      280      285
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
290      295      300
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
305      310      315      320
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
325      330      335
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
340      345      350
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
355      360      365

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<210> 19
<211> 414
<212> DNA
<213> homo sapiens
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[illegible]

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<210> 20
<211> 137
<212> PRT
<213> homo sapiens
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|---|----|
| <400>   | 20 |
| Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro<br>5                10       15                     |    |
| Thr Tyr Glu Glu Val Thr Pro Tyr Arg Gln Thr Asn Glu Lys Tyr<br>20                25       30                        |    |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu<br>35                40          45                 |    |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val<br>50                55         60                  |    |
| Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu<br>65                        70         75       80 |    |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn<br>85                90         95                  |    |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser<br>100                105       110                 |    |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu<br>115                120         125               |    |
| Asp Val Gln Pro His Val Ser Lys Gln<br>130                135   |    |

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<210> 21
<211> 1422
<212> DNA
<213> homo sapiens
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|             |            |            |             |             |            |  |     |
|-------------|------------|------------|-------------|-------------|------------|--|-----|
| <400> 21    |            |            |             |             |            |  | 60  |
| atgccagctt  | tgtcaacggg | atctgggagt | gacactggtc  | tgtatgagct  | gttggctgct |  | 120 |
| ctgccagccc  | agctgcagcc | acatgtggat | agccaggaag  | acctgacctt  | cctctgggat |  | 180 |
| atgtttggtg  | aaaaaagcct | gcattcattg | gtaaaagattc | atgaaaaaact | acactactat |  | 240 |
| gagaagcaga  | gtccggtgcc | cattctccat | gggtgcggcgg | ccttggccga  | tgatctggcc |  | 300 |
| gaagagcttc  | agaacaagcc | attaaacagt | gagatcacag  | agctgttgaa  | actactgtca |  | 360 |
| aaacccaatg  | tgaaggcttt | gctctctgt  | catgatactg  | tggctcagaa  | gaattacgac |  | 420 |
| ccagtgtttg  | ctcctatgcc | tgaagatatt | gacgatgagg  | agaactcagt  | aaaaataatc |  | 480 |
| cgtctggtca  | aaaatataga | accactggga | gttaccatta  | aaaggatga   | acagaccggg |  | 540 |
| gcatcattg   | tggccagaat | catgagagga | ggagctcgag  | atagaagtgg  | tcttattcat |  | 600 |
| gttggtgatg  | aacttaggga | agtcaacggg | ataccagtgg  | aggataaaag  | gcttgaggaa |  | 660 |
| ataatacaga  | ttttggctca | gtctcaggga | gcaattacat  | ttaagattat  | accgcgcagc |  | 720 |
| aaagaggaga  | caccatcaaa | agaaggcaag | atgtttatca  | aagccctctt  | tgactataat |  | 780 |
| cctaattgag  | ataaggcaat | tccatgtaag | gaagctgggc  | tttctttcaa  | aaagggagat |  | 840 |
| gttaattcaga | ttatgagcca | agatgatgca | acttggtggc  | aagcgaaca   | cgaagctgat |  | 900 |
| qccaacccca  | gggcaggctt | gatccctca  | aagcatttcc  | aggaaaggag  | attggctttg |  |     |



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agacgaccag aaatattggt tcagcccctg aaagtttcca acaggaaatc atctggtttt 960
agaagaagtt ttcgtcttag tagaaaagat aagaaaacaa ataaatccat gtatgaatgc 1020
aagaagagtg atcagtagca cacagctgac gtaccacat acgaagaagt gacaccgtat 1080
cggcgacaaa ctaatgaaaa atacagactc gttgtcttgg ttggtcccgt gggagtaggg 1140
ctgaatgaac tgaacgaaa gctgctgac agtgacacc agcactatgg cgtgacagtg 1200
ccccatacca ccagagcaag aagaagccag gagagtgatg gtgttgaata cattttcatt 1260
tccaagcatt tgtttgagac agatgtacaa aataacaagt ttattgaata tggagaatat 1320
aaaaacaact actacggcac aagtatagac tcagttcggg ctgtccttgc taaaaacaaa 1380
gtttgtttgt tggatgttca gcctcatgta agtaacaat ga 1422

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<210> 22
<211> 473
<212> PRT
<213> homo sapiens

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<400> 22
Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu
1      5      10      15
Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
20     25     30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
35     40     45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
50     55     60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
65     70     75     80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
85     90     95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100    105    110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115    120    125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130    135    140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145    150    155    160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165    170    175
Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
180    185    190
Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
195    200    205
Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
210    215    220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225    230    235    240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
245    250    255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
260    265    270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
275    280    285
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
290    295    300
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
305    310    315    320
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
325    330    335
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
340    345    350
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
355    360    365
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu

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370 375 380  
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
 385 390 395 400  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
 405 410 415  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
 420 425 430  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
 435 440 445  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
 450 455 460  
 Asp Val Gln Pro His Val Ser Lys Gln  
 465 470

<210> 23  
 <211> 750  
 <212> DNA  
 <213> homo sapiens

<400> 23  
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 aaggcaattc catgtaagga agctgggctt tctttcaaaa agggagatat tcttcagatt 120  
 atgagccaag atgatgcaac ttggtggcaa gcgaaacacg aagctgatgc caaccccagg 180  
 gcaggcttga tccctcaaa gcatttccag gaaaggagat tggctttgag acgaccagaa 240  
 atattgggttc agcccctgaa agtttccaac aggaaatcat ctgggttttag aagaagtttt 300  
 cgtcttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaa gaagagtgtat 360  
 cagtacgaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420  
 aatgaaaaat acagactcgt tgtcttggtt ggtcccgtgg gtagtagggct gaatgaactg 480  
 aaacgaaagc tgctgatcag tgacacccag cactatggcg tgacagtgcc ccataccacc 540  
 agagcaagaa gaagccagga gagtgatggt gttgaatata ttttcatttc caagcatttg 600  
 tttgagacag atgtacaaaa taacaagttt attgaatatg gagaatataa aaacaactac 660  
 tacggcacia gtatagactc agttcggctc gtccttgcta aaaacaaagt ttgtttgttg 720  
 gatgttcagc ctcatgtaag taaacaatga 750

<210> 24  
 <211> 249  
 <212> PRT  
 <213> homo sapiens

<400> 24  
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 Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
 20 25 30  
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp  
 35 40 45  
 Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile  
 50 55 60  
 Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu  
 65 70 75 80  
 Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe  
 85 90 95  
 Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser  
 100 105 110  
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
 115 120 125  
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr  
 130 135 140  
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
 145 150 155 160  
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
 165 170 175  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu

180 185 190  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
 195 200 205  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
 210 215 220  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
 225 230 235 240  
 Asp Val Gln Pro His Val Ser Lys Gln  
 245

<210> 25  
 <211> 468  
 <212> DNA  
 <213> homo sapiens

<400> 25  
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 cgaaagctgc tgatcagtga caccagcac tatggcgtga cagtgcccca taccaccaga 120  
 gcaagaagaa gccaggagag tgatggtggt gaatacattt tcatttccaa gcatttggtt 180  
 gagacagatg tacaaaataa caagtttatt gaatatggag aatataaaaa caactactac 240  
 ggcacaagta tagactcagt tcggtctgtc cttgctaaaa acaaagtttg tttggttgat 300  
 gttcagcctc atacagtga gcatTTaagg aactagaat ttaagcccta tgtgatattt 360  
 ataaagcctc catcaataga gcgtttgaga gaaacaagaa aaaatgcaaa gattatttca 420  
 agcagagatg accaaggtgc tgcaaaaccc ttcacacaag gagaatag 468

<210> 26  
 <211> 155  
 <212> PRT  
 <213> homo sapiens

<400> 26  
 Met Cys Cys Pro Lys Thr Ala Cys Arg Gly Pro Val Gly Val Gly Leu  
 1 5 10 15  
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 20 25 30  
 Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp  
 35 40 45  
 Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val  
 50 55 60  
 Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr  
 65 70 75 80  
 Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val  
 85 90 95  
 Cys Leu Leu Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu  
 100 105 110  
 Glu Phe Lys Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg  
 115 120 125  
 Leu Arg Glu Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp  
 130 135 140  
 Gln Gly Ala Ala Lys Pro Phe Thr Gln Gly Glu  
 145 150 155

<210> 27  
 <211> 555  
 <212> DNA  
 <213> homo sapiens

<400> 27  
 atgtatgaat gcaagaagag tgatcagtac gacacagctg acgtacccac atacgaagaa 60  
 gtgacaccgt atcggcgaca aactaatgaa aaatacagac tcgttgcttt ggttggtccc 120  
 gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcacac ccagcactat 180  
 ggcgtgacag tgccccatac caccagagca agaagaagcc aggagagtga tgggtgtgaa 240  
 tacattttca tttccaagca tttgtttgag acagatgtac aaaataacaa gtttattgaa 300

|            |             |             |            |            |            |     |
|------------|-------------|-------------|------------|------------|------------|-----|
| tatggagaat | ataaaaaacaa | ctactacggc  | acaagtatag | actcagttcg | gtctgtcctt | 360 |
| gctaaaaaca | aagtttgttt  | gttggatgtt  | cagcctcata | cagtgaagca | tttaaggaca | 420 |
| ctagaattta | agccctatgt  | gatatttata  | aagcctccat | caatagagcg | tttgagagaa | 480 |
| acaagaaaaa | atgcaaagat  | tattttcaagc | agagatgacc | aaggtgctgc | aaaacccttc | 540 |
| acacaaggag | aatag       |             |            |            |            | 555 |

<210> 28  
 <211> 184  
 <212> PRT  
 <213> homo sapiens

<400> 28  
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
 1 5 10 15  
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr  
 20 25 30  
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
 35 40 45  
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
 50 55 60  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
 65 70 75 80  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
 85 90 95  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
 100 105 110  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
 115 120 125  
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
 130 135 140  
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
 145 150 155 160  
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
 165 170 175  
 Ala Lys Pro Phe Thr Gln Gly Glu  
 180

<210> 29  
 <211> 1563  
 <212> DNA  
 <213> homo sapiens

|             |            |             |             |             |            |      |
|-------------|------------|-------------|-------------|-------------|------------|------|
| <400> 29    |            |             |             |             |            | 60   |
| atgccagctt  | tgtcaacggg | atctgggagt  | gacactggtc  | tgtatgagct  | gttggctgct | 120  |
| ctgccagccc  | agctgcagcc | acatgtggat  | agccaggaag  | acctgacctt  | cctctgggat | 180  |
| atgtttgttg  | aaaaaagcct | gcattcattg  | gtaaagattc  | atgaaaaact  | acactactat | 240  |
| gagaagcaga  | gtccggtgcc | cattctccat  | ggtgcggcgg  | ccttggccga  | tgatctggcc | 300  |
| gaagagcttc  | agaacaagcc | attaaacagt  | gagatcagag  | agctgttgaa  | actactgtca | 360  |
| aaacccaatg  | tgaaggcttt | gctctctgta  | catgatactg  | tggctcagaa  | gaattacgac | 420  |
| ccagtgttgc  | ctcctatgcc | tgaagatatt  | gacgatgagg  | aagactcagt  | aaaaataatc | 480  |
| cgtctggtca  | aaaatagaga | accactggga  | gctaccatta  | agaaggatga  | acagaccggg | 540  |
| gcgatcattg  | tggccagaat | catgagagga  | ggagctgcag  | atagaagtgg  | tcttattcat | 600  |
| gttggtgatg  | aacttaggga | agtcaacggg  | ataccagtgg  | aggataaaaag | gcctgaggaa | 660  |
| ataatacaga  | ttttggctca | gtctcaggga  | gcaattacat  | ttaagattat  | acccggcagc | 720  |
| aaagaggaga  | caccatcaaa | agaaggcaag  | atgtttatca  | aagccctctt  | tgactataat | 780  |
| cctaattgagg | ataaggcaat | tccatgtaag  | gaagctgggc  | tttctttcaa  | aaagggagat | 840  |
| attcttcaga  | ttatgagcca | agatgatgca  | acttgggtggc | aagcgaaaca  | cgaagctgat | 900  |
| gccaacccca  | gggcaggctt | gatccccctca | aagcatttcc  | aggaaaggag  | attggctttg | 960  |
| agacgaccag  | aaatattggg | tcagcccctg  | aaagtttcca  | acaggaaatc  | atctggtttt | 1020 |
| agaagaagtt  | ttcgtcttag | tagaaaagat  | aagaaaacaa  | ataaatccat  | gtatgaatgc | 1080 |
| aagaagagtg  | atcagtacga | cacagctgac  | gtacccacat  | acgaagaagt  | gacaccgtat | 1140 |
| cggcgacaaa  | ctaataaaaa | atacagactc  | gttggtcttg  | ttgggtcccgt | gggagtaggg | 1200 |
| ctgaatgaac  | tgaaacgaaa | gctgctgatc  | agtgcacacc  | agcactatgg  | cgtgacagtg |      |

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ccccatacca ccagagcaag aagaagccag gagagtgatg gtgttgaata cattttcatt 1260
tccaagcatt tgtttgagac agatgtacaa aataacaagt ttattgaata tggagaatat 1320
aaaaacaact actacggcac aagtatagac tcagttcggg ctgtccttgc taaaaacaaa 1380
gtttgtttgt tggatgttca gcctcataca gtgaagcatt taaggacact agaatttaag 1440
ccctatgtga tatttataaa gcctccatca atagagcggt tgagagaaac aagaaaaaat 1500
gcaaagatta tttcaagcag agatgaccaa ggtgctgcaa aacccttcac acaaggagaa 1560
tag 1563

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<210> 30
<211> 520
<212> PRT
<213> homo sapiens

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<400> 30
Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu
1 5 10 15
Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
20 25 30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
35 40 45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
50 55 60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
65 70 75 80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
85 90 95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100 105 110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115 120 125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130 135 140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145 150 155 160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165 170 175
Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
180 185 190
Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
195 200 205
Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
210 215 220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225 230 235 240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
245 250 255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
260 265 270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
275 280 285
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
290 295 300
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
305 310 315 320
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
325 330 335
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
340 345 350
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
355 360 365
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
370 375 380
Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val

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385                      390                      395                      400  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
                                  405                      410                      415  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
                                  420                      425                      430  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
                                  435                      440                      445  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
                                  450                      455                      460  
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
 465                      470                      475                      480  
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
                                  485                      490                      495  
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
                                  500                      505                      510  
 Ala Lys Pro Phe Thr Gln Gly Glu  
                                  515                      520

<210> 31  
 <211> 891  
 <212> DNA  
 <213> homo sapiens

<400> 31  
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 aaggcaattc catgtaagga agctgggctt tctttcaaaa agggagatat tcttcagatt 120  
 atgagccaag atgatgcaac ttggtggcaa gcgaaacacg aagctgatgc caaccccagg 180  
 gcaggcttga tccccctcaaa gcatttccag gaaaggagat tggctttgag acgaccagaa 240  
 atattggttc agcccctgaa agtttccaac aggaaatcat ctggtttttag aagaagtttt 300  
 cgtcttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaa gaagagtgat 360  
 cagtacgaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420  
 aatgaaaaat acagactcgt tgtcttggtt ggtcccgtgg gactagggct gaatgaactg 480  
 aaacgaaagc tgctgatcag tgacaccag cactatggcg tgacagtgcc ccataccacc 540  
 agagcaagaa gaagccagga gagtgatggt gttgaatata ttttcatttc caagcatttg 600  
 tttgagacag atgtacaaaa taacaagttt attgaatatg gagaatataa aaacaactac 660  
 tacggcacia gtatagactc agttcggctc gtccttgcta aaaacaaagt ttgtttgttg 720  
 gatgttcagc ctcatacagt gaagcattta aggacactag aatttaagcc ctatgtgata 780  
 tttataaagc ctccatcaat agagcgtttg agagaaacaa gaaaaaatgc aaagattatt 840  
 tcaagcagag atgaccaagg tgctgcaaaa cccttcacac aaggagaata g 891

<210> 32  
 <211> 296  
 <212> PRT  
 <213> homo sapiens

<400> 32  
 Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn  
 1                      5                      10                      15  
 Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
                                  20                      25                      30  
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp  
                                  35                      40                      45  
 Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile  
                                  50                      55                      60  
 Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu  
 65                      70                      75                      80  
 Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe  
                                  85                      90                      95  
 Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser  
                                  100                      105                      110  
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
                                  115                      120                      125  
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr



Gln Gly Ala Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile  
 145 150 155 160  
 Lys Ser Ala Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys  
 165 170 175  
 Ile Ile Ile Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys  
 180 185 190  
 Lys Lys Lys  
 195

<210> 35  
 <211> 672  
 <212> DNA  
 <213> homo sapiens

<400> 35  
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 gtgacaccgt atcgggcgaca aactaatgaa aaatacagac tcgttgctctt gggtgggtccc 120  
 gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcacac ccagcactat 180  
 ggctgacag tgcccatac caccagagca agaagaagcc aggagagtga tgggtgttgaa 240  
 tacattttca tttccaagca tttgtttgag acagatgtac aaaataacaa gtttattgaa 300  
 tatggagaat ataaaaacaa ctactacggc acaagtatag actcagttcg gtctgtcctt 360  
 gctaaaaaca aagtttgttt gttggatggt cagcctcata cagtgaagca ttttaaggaca 420  
 ctagaattta agccttatgt gatatttata aagcctccat caatagagcg tttgagagaa 480  
 acaagaaaaa atgcaaagat tatttcaagc agagatgacc aaggtgctgc aaaacccttc 540  
 acagaagaag attttcaaga aatgattaaa tctgcacaga taatggaaag tcaatatggt 600  
 catctttttg acaaaattat aataaatgat gacctcactg tggcattcaa aaaaaaaaaa 660  
 aaaaaaaaaa aa 672

<210> 36  
 <211> 224  
 <212> PRT  
 <213> homo sapiens

<400> 36  
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 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
 35 40 45  
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
 50 55 60  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
 65 70 75 80  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
 85 90 95  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
 100 105 110  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
 115 120 125  
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
 130 135 140  
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
 145 150 155 160  
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
 165 170 175  
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala  
 180 185 190  
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile  
 195 200 205  
 Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys Lys Lys Lys  
 210 215 220



<210> 37  
 <211> 1680  
 <212> DNA  
 <213> homo sapiens

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<400> 37
atgccagctt tgtcaacggg atctgggagt gacactggtc tgtatgagct gttggctgct      60
ctgccagccc agctgcagcc acatgtggat agccaggaag acctgacctt cctctgggat      120
atgttttggtg aaaaaagcct gcattcattg gtaaagattc atgaaaaact acactactat      180
gagaagcaga gtccggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc      240
gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttgaa actactgtca      300
aaacccaatg tgaaggcttt gctctctgta catgatactg tggctcagaa gaattacgac      360
ccagtgttgc ctcctatgcc tgaagatatt gacgatgagg aagactcagt aaaaataatc      420
cgtctgggtca aaaatagaga accactggga gctaccatta agaaggatga acagaccggg      480
gcgatcattg tggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat      540
gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaag gcctgaggaa      600
ataatacaga ttttgggtca gtctcagggg gcaattacat ttaagattat acccggcagc      660
aaagaggaga caccatcaaa agaaggcaag atgtttatca aagccctctt tgactataat      720
cctaattgagg ataaggcaat tccatgtaag gaagctgggc tttctttcaa aaagggagat      780
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gccaaaccca gggcaggctt gatccccctc aagcatttcc aggaaaggag attggctttg      900
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agaagaagtt ttcgtcttag tagaaaagat aagaaaacaa ataaatccat gtatgaatgc      1020
aagaagagtg atcagtacga cacagctgac gtaccacat acgaagaagt gacaccgtat      1080
cggcgacaaa ctaatgaaaa atacagactc ttgtgtcttg tgggtcccggt gggagtaggg      1140
ctgaatgaac tgaaacgaaa gctgtgatc agtgacacc agcactatgg cgtgacagtg      1200
ccccatacca ccagagcaag aagaagccag gagagtgatg gtgttgaaata cattttcatt      1260
tccaagcatt tgtttgagac agatgtacaa aatacaagtt ttattgaata tggagaatat      1320
aaaaacaact actacggcac aagtatagac tcagttcgggt ctgtccttgc taaaaacaaa      1380
gtttgtttgt tggatgttca gcctcatata gtgaagcatt taaggacact agaatttaag      1440
ccctatgtga tatttataaa gcctccatca atagagcgtt tgagagaaac aagaaaaaat      1500
gcaaagatta tttcaagcag agatgaccaa ggtgctgcaa aacccttcac agaagaagat      1560
tttcaagaaa tgattaaatc tgcacagata atggaaagtc aatatggcca tctttttgac      1620
aaaattataa taaatgatga cctcactgtg gcattcaaaa aaaaaaaaaa aaaaaaaaaa      1680
  
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<210> 38  
 <211> 560  
 <212> PRT  
 <213> homo sapiens

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<400> 38
Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu
1          5          10          15
Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
20          25          30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
35          40          45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
50          55          60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
65          70          75          80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
85          90          95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100         105         110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115         120         125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130         135         140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145         150         155         160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165         170         175
  
```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Ile | His | Val | Gly | Asp | Glu | Leu | Arg | Glu | Val | Asn | Gly | Ile | Pro |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val | Glu | Asp | Lys | Arg | Pro | Glu | Glu | Ile | Ile | Gln | Ile | Leu | Ala | Gln | Ser |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gln | Gly | Ala | Ile | Thr | Phe | Lys | Ile | Ile | Pro | Gly | Ser | Lys | Glu | Glu | Thr |
|     |     |     | 210 |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Ser | Lys | Glu | Gly | Lys | Met | Phe | Ile | Lys | Ala | Leu | Phe | Asp | Tyr | Asn |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Pro | Asn | Glu | Asp | Lys | Ala | Ile | Pro | Cys | Lys | Glu | Ala | Gly | Leu | Ser | Phe |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Lys | Lys | Gly | Asp | Ile | Leu | Gln | Ile | Met | Ser | Gln | Asp | Asp | Ala | Thr | Trp |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Trp | Gln | Ala | Lys | His | Glu | Ala | Asp | Ala | Asn | Pro | Arg | Ala | Gly | Leu | Ile |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Ser | Lys | His | Phe | Gln | Glu | Arg | Arg | Leu | Ala | Leu | Arg | Arg | Pro | Glu |
|     |     |     | 290 |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Ile | Leu | Val | Gln | Pro | Leu | Lys | Val | Ser | Asn | Arg | Lys | Ser | Ser | Gly | Phe |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |
| Arg | Arg | Ser | Phe | Arg | Leu | Ser | Arg | Lys | Asp | Lys | Lys | Thr | Asn | Lys | Ser |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Met | Tyr | Glu | Cys | Lys | Lys | Ser | Asp | Gln | Tyr | Asp | Thr | Ala | Asp | Val | Pro |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Thr | Tyr | Glu | Glu | Val | Thr | Pro | Tyr | Arg | Arg | Gln | Thr | Asn | Glu | Lys | Tyr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Leu | Val | Val | Leu | Val | Gly | Pro | Val | Gly | Val | Gly | Leu | Asn | Glu | Leu |
|     |     |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Lys | Arg | Lys | Leu | Leu | Ile | Ser | Asp | Thr | Gln | His | Tyr | Gly | Val | Thr | Val |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Pro | His | Thr | Thr | Arg | Ala | Arg | Arg | Ser | Gln | Glu | Ser | Asp | Gly | Val | Glu |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Tyr | Ile | Phe | Ile | Ser | Lys | His | Leu | Phe | Glu | Thr | Asp | Val | Gln | Asn | Asn |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Lys | Phe | Ile | Glu | Tyr | Gly | Glu | Tyr | Lys | Asn | Asn | Tyr | Tyr | Gly | Thr | Ser |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Ile | Asp | Ser | Val | Arg | Ser | Val | Leu | Ala | Lys | Asn | Lys | Val | Cys | Leu | Leu |
|     |     |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Asp | Val | Gln | Pro | His | Thr | Val | Lys | His | Leu | Arg | Thr | Leu | Glu | Phe | Lys |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Pro | Tyr | Val | Ile | Phe | Ile | Lys | Pro | Pro | Ser | Ile | Glu | Arg | Leu | Arg | Glu |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     | 495 |     |     |
| Thr | Arg | Lys | Asn | Ala | Lys | Ile | Ile | Ser | Ser | Arg | Asp | Asp | Gln | Gly | Ala |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Ala | Lys | Pro | Phe | Thr | Glu | Glu | Asp | Phe |     |     |     |     |     |     |     |

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<210> 39
<211> 1008
<212> DNA
<213> homo sapiens
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[illegible]

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agagcaagaa gaagccagga gagtgatggt gttgaatata ttttcatttc caagcatttg 600  
tttgagacag atgtacaaaa taacaagttt attgaatatg gagaatataa aaacaactac 660  
tacggcacaa gtatagactc agttcgggtc gtccttgcta aaaacaaagt ttgtttgttg 720  
gatgttcagc ctcatacagt gaagcattta aggacactag aatttaagcc ctatgtgata 780  
tttataaagc ctccatcaat agagcgtttg agagaaacaa gaaaaaatgc aaagattatt 840  
tcaagcagag atgaccaagc tgctgcaaaa cccttcacag aagaagattt tcaagaaatg 900  
attaaatctg cacagataat ggaaagtcaa tatggtcatc tttttgacaa aattataata 960  
aatgatgacc tcaactgtggc attcaaaaaa aaaaaaaaaa aaaaaaaa 1008

<210> 40  
<211> 336  
<212> PRT  
<213> homo sapiens

<400> 40  
Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn  
1 5 10 15  
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
20 25 30  
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp  
35 40 45  
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile  
50 55 60  
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu  
65 70 75 80  
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe  
85 90 95  
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser  
100 105 110  
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
115 120 125  
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr  
130 135 140  
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
145 150 155 160  
Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
165 170 175  
Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
180 185 190  
Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
195 200 205  
Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
210 215 220  
Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
225 230 235 240  
Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
245 250 255  
Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
260 265 270  
Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
275 280 285  
Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala  
290 295 300  
Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile  
305 310 315 320  
Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys Lys Lys  
325 330 335

<210> 41  
<211> 636  
<212> DNA  
<213> homo sapiens

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<400> 41
atgtgctgcc caaagactgc ttgcagaggt cccgtgggag tagggctgaa tgaactgaaa 60
cgaaagctgc tgatcagtga caccagcac tatggcgtga cagtgcacca taccaccaga 120
gcaagaagaa gccaggagag tgatgggtgtt gaatacattt tcattttcaa gcatttggtt 180
gagacagatg tacaaaataa caagtttatt gaatatggag aatataaaaa caactactac 240
ggcacaagta tagactcagt tcggtctgtc cttgctaaaa acaaagtttg ttgttggat 300
gttcagcctc atacagtga gcatTTaagg acactagaat ttaagcccta tgtgatattt 360
ataaagcctc catcaataga gcgtttgaga gaaacaagaa aaaatgcaaa gattatttca 420
agcagagatg accaaggtgc tgcaaaaccc ttcacagaag aagattttca agaaatgatt 480
aaatctgcac agataatgga aagtcaatat ggtcatcttt ttgacaaaat tataataaat 540
gatgacctca ctgtggcatt caatgagctc aaaacaactt ttgacaaatt agagacagag 600
accattggg tgccagtga ctggttacat tcataa 636

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<210> 42
<211> 211
<212> PRT
<213> homo sapiens

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<400> 42
Met Cys Cys Pro Lys Thr Ala Cys Arg Gly Pro Val Gly Val Gly Leu
1      5      10      15
Asn Glu Leu Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly
20      25      30
Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp
35      40      45
Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val
50      55      60
Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr
65      70      75      80
Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val
85      90      95
Cys Leu Leu Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu
100     105     110
Glu Phe Lys Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg
115     120     125
Leu Arg Glu Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp
130     135     140
Gln Gly Ala Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile
145     150     155     160
Lys Ser Ala Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys
165     170     175
Ile Ile Ile Asn Asp Asp Leu Thr Val Ala Phe Asn Glu Leu Lys Thr
180     185     190
Thr Phe Asp Lys Leu Glu Thr Glu Thr His Trp Val Pro Val Ser Trp
195     200     205
Leu His Ser
210

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<210> 43
<211> 723
<212> DNA
<213> homo sapiens

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<400> 43
atgtatgaat gcaagaagag tgatcagtac gacacagctg acgtaccac atacgaagaa 60
gtgacaccgt atcggcgaca aactaatgaa aaatacagac tcgttgtctt ggttggtccc 120
gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcac ccagcactat 180
ggcgtgacag tgcccatac caccagagca agaagaagcc aggagagtga tgggtgtgaa 240
tacattttca tttccaagca tttgtttgag acagatgtac aaaataacaa gtttattgaa 300
tatggagaat ataaaaacaa ctactacggc acaagtatag actcagttcg gtctgtcctt 360
gctaaaaaca aagtttgttt gttggatgtt cagcctcata cagtgaagca tttaggaca 420
ctagaattta agccctatgt gatatttata aagcctccat caatagagcg tttgagagaa 480
acaagaaaa atgcaaagat tatttcaagc agagatgacc aaggtgctgc aaaacccttc 540

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acagaagaag attttcaaga aatgattaaa tctgcacaga taatggaaag tcaatatggt 600  
catctttttg acaaaattat aataaatgat gacctcactg tggcattcaa tgagctcaaa 660  
acaacttttg acaaattaga gacagagacc cattgggtgc cagtgaagctg gttacattca 720  
taa 723

<210> 44  
<211> 240  
<212> PRT  
<213> homo sapiens

<400> 44  
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
1 5 10 15  
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr  
20 25 30  
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
35 40 45  
Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
50 55 60  
Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
65 70 75 80  
Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
85 90 95  
Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
100 105 110  
Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
115 120 125  
Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
130 135 140  
Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
145 150 155 160  
Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
165 170 175  
Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala  
180 185 190  
Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile  
195 200 205  
Asn Asp Asp Leu Thr Val Ala Phe Asn Glu Leu Lys Thr Thr Phe Asp  
210 215 220  
Lys Leu Glu Thr Glu Thr His Trp Val Pro Val Ser Trp Leu His Ser  
225 230 235 240

TCCTTGGTCA

<210> 45  
<211> 1731  
<212> DNA  
<213> homo sapiens

<400> 45  
atgccagctt tgtcaacggg atctgggagt gacactgggc tgtatgagct gttggctgct 60  
ctgccagccc agctgcagcc acatgtggat agccaggaag acctgacctt cctctgggat 120  
atgtttggtg aaaaaagcct gcattcattg gtaaagattc atgaaaaact acactactat 180  
gagaagcaga gtccggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc 240  
gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttgaa actactgtca 300  
aaaccaatg tgaaggcttt gctctctgta catgatactg tggctcagaa gaattacgac 360  
ccagtgttgc ctccatgccc tgaagatatt gacgatgagg aagactcagt aaaaataatc 420  
cgtctggtca aaaatagaga accactggga gctaccatta agaaggatga acagaccggg 480  
gcgatcattg tggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat 540  
gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaaag gcctgaggaa 600  
ataatacaga ttttggctca gtctcaggga gcaattacat ttaagattat acccggcagc 660  
aaagaggaga caccatcaaa agaaggcaag atgtttatca aagccctctt tgactataat 720  
cctaattgagg ataaggcaat tccatgtaag gaagctgggc tttctttcaa aaaggagat 780  
attcttcaga ttatgagcca agatgatgca acttggtggc aagcgaaca cgaagctgat 840  
gccaacccca gggcaggctt gatccctca aagcatttcc aggaaaggag attggctttg 900

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agacgaccag aaatattggt tcagcccctg aaagtttcca acaggaaatc atctggtttt 960
agaagaagtt ttcgtcttag tagaaaagat aagaaaacaa ataaatccat gtatgaatgc 1020
aagaagagtg atcagtacga cacagctgac gtacccacat acgaagaagt gacaccgtat 1080
cggcgacaaa ctaatgaaaa atacagactc gttgtcttgg ttggtcccgt gggagtaggg 1140
ctgaatgaac tgaacgaaa gctgctgac agtgacaccc agcactatgg cgtgacagtg 1200
ccccatacca ccagagcaag aagaagccag gagagtgatg gtgttgaata cattttcatt 1260
tccaagcatt tgtttgagac agatgtacaa aataacaagt ttattgaata tggagaatat 1320
aaaaacaact actacggcac aagtatatagac tcagttcggg ctgtccttgc taaaaacaaa 1380
gtttgtttgt tggatgttca gcctcatata gtgaagcatt taaggacact agaatttaag 1440
ccctatgtga tatttataaa gcctccatca atagagcggt tgagagaaac aagaaaaaat 1500
gcaaagatta tttcaagcag agatgaccaa ggtgctgcaa aacccttcac agaagaagat 1560
tttcaagaaa tgattaaatc tgcacagata atggaaagtc aatatggtca tcttttgac 1620
aaaattataa taaatgatga cctcactgtg gcattcaatg agctcaaac aacttttgac 1680
aaattagaga cagagaccga ttgggtgccg gtgagctggt tacattcata a 1731

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<210> 46  
 <211> 576  
 <212> PRT  
 <213> homo sapiens

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<400> 46
Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu
1 5 10 15
Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
20 25 30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
35 40 45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
50 55 60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
65 70 75 80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
85 90 95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100 105 110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115 120 125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130 135 140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145 150 155 160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165 170 175
Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
180 185 190
Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
195 200 205
Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
210 215 220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225 230 235 240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
245 250 255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
260 265 270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
275 280 285
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
290 295 300
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
305 310 315 320
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
325 330 335

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Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro  
 340 345 350  
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr  
 355 360 365  
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu  
 370 375 380  
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val  
 385 390 395 400  
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
 405 410 415  
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn  
 420 425 430  
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser  
 435 440 445  
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu  
 450 455 460  
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys  
 465 470 475 480  
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu  
 485 490 495  
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala  
 500 505 510  
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala  
 515 520 525  
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile  
 530 535 540  
 Asn Asp Asp Leu Thr Val Ala Phe Asn Glu Leu Lys Thr Thr Phe Asp  
 545 550 555 560  
 Lys Leu Glu Thr Glu Thr His Trp Val Pro Val Ser Trp Leu His Ser  
 565 570 575

<210> 47  
 <211> 1059  
 <212> DNA  
 <213> homo sapiens

<400> 47  
 atgaaacttt tcttccagat gtttatcaaa gccctctttg actataatcc taatgaggat 60  
 aaggcaattc catgtaagga agctgggctt tctttcaaaa agggagatat tcttcagatt 120  
 atgagccaag atgatgcaac ttggtggcaa gcgaaacacg aagctgatgc caaccccagg 180  
 gcaggcttga tcccccaaaa gcatttccag gaaaggagat tggctttgag acgaccagaa 240  
 atattggttc agcccctgaa agtttccaac aggaaatcat ctggttttag aagaagtttt 300  
 cgtcttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaa gaagagtgtat 360  
 cagtagcaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420  
 aatgaaaaat acagactcgt tgtcttggtt ggtcccgtgg gagtagggct gaatgaactg 480  
 aaacgaaagc tgctgatcag tgacaccacg cactatggcg tgacagtgcc ccataccacc 540  
 agagcaagaa gaagccagga gagtgatggt gttgaataca ttttcatttc caagcatttg 600  
 tttgagacag atgtacaaaa taacaagtgt attgaatgtg gagaatataa aaacaactac 660  
 tacggcacia gtatagactc agttcgggtc gtccttgcta aaaacaaagt ttgtttgttg 720  
 gatgttcagc ctcatcacgt gaagcattta aggacactag aatttaagcc ctatgtgata 780  
 tttataaagc ctccatcaat agagcgtttg agagaaacaa gaaaaaatgc aaagattatt 840  
 tcaagcagag atgaccaagg tgctgcaaaa cccttcacag aagaagattt tcaagaaatg 900  
 attaaatctg cacagataat ggaaagtcaa tatggctcatc tttttgacaa aattataata 960  
 aatgatgacc tcactgtggc attcaatgag ctcaaaacaa cttttgacaa attagagaca 1020  
 gagaccatt ggggtgccagt gagctgggta cattcataa 1059

<210> 48  
 <211> 352  
 <212> PRT  
 <213> homo sapiens

<400> 48  
 Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn

1 5 10 15

Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe  
 20 25 30  
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Ala Thr Trp  
 35 40 45  
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 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu  
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